

INLAND NAVIGATION.

STAGE OF WATER IN RIVERS AND HARBORS.

Saint Paul, Minn.: the steamer "Mary Morton," drawing about three feet of water, was unable to reach this place on the 2d on account of low water in the Mississippi River.

The steamer "Sidney" arrived from Saint Louis on the 24th, she was the first of the regular through boats to arrive here since the close of last month.

Chattanooga, Tenn.: boats of low draught resumed their regular trips on the Tennessee River on the 3d.

In the following table are shown the danger-points at the various stations, the highest and lowest depths for September, 1888, with the dates of occurrence and the monthly ranges:

Heights of rivers above low-water mark, September, 1888 (in feet and tenths).

Stations.	Danger-point on gauge.	Highest water.		Lowest water.		Monthly range.
		Date.	Height.	Date.	Height.	
<i>Red River:</i>						
Shreveport, La.	29.9	15	12.4	1	5.2	7.2
<i>Arkansas River:</i>						
Fort Smith, Ark. ...	22.0	1	13.3	27, 28	1.2	12.1
Little Rock, Ark. ...	23.0	3	14.4	30	2.4	12.0
<i>Missouri River:</i>						
Omaha, Nebr.	18.0	1, 2	8.4	29, 30	6.3	2.1
Leavenworth, Kans. ...	20.0	1	10.7	29, 30	6.6	4.1
<i>Mississippi River:</i>						
Saint Paul, Minn. ...	14.5	10, 11, 15, 16, 18, 19	3.3	6, 7	2.8	0.5
La Crosse, Wis.	24.0	1	4.7	16, 27, 30	3.7	1.0
Dubuque, Iowa.	16.0	1	5.0	18	3.3	1.7
Davenport, Iowa.	15.0	1	3.9	21, 30	2.0	1.9
Keokuk, Iowa.	14.0	1	3.9	20, 21	1.6	2.3
Saint Louis, Mo.	32.0	1	12.7	29, 30	6.2	6.5
Cairo, Ill.	40.0	1	24.1	30	13.1	10.0
Memphis, Tenn.	34.0	3	20.0	27	11.6	8.4
Vicksburg, Miss.	41.0	9	25.0	30	14.1	10.9
New Orleans, La.	13.0	24, 25	7.5	29, 30	4.8	2.7
<i>Ohio River:</i>						
Pittsburg, Pa.	22.0	9	10.6	8	2.1	8.5
Parkersburg,	17	12.5	30	4.0	8.5
Cincinnati, Ohio.	50.0	21	22.2	30	9.4	12.8
Louisville, Ky.	25.0	23	8.9	30	6.2	2.7
<i>Cumberland River:</i>						
Nashville, Tenn. ...	40.0	10	20.3	22	2.9	17.4
<i>Tennessee River:</i>						
Chattanooga, Tenn. ...	33.0	19	11.5	1	3.5	8.0
<i>Monongahela River:</i>						
Pittsburg, Penn.	29.0	9	10.6	8	2.1	8.5
<i>Savannah River:</i>						
Augusta, Ga.	32.0	11	38.7	30	10.5	28.2
<i>Willamette River:</i>						
Portland, Oregon.	5	5.1	25, 28	1.2	3.9

FLOODS.

The excessively heavy rainfalls in the south Atlantic and east Gulf states during a greater portion of the first and a part of the second decade of the month caused destructive freshets. Lowlands were inundated and great damage was caused to the cotton crops.

Flemingsburg, Flemings Co., Ky.: a cloud-burst washed out trestling, bridges, and fills, on the Cincinnati and Southwestern Railroad between this place and Hillsborough on the 1st. The greatest loss fell on the tobacco planters.

Charleston, W. Va.: a flood in the New River on the 5th carried away a large iron bridge on the Chesapeake and Ohio Railroad at Grand View, involving a loss of \$50,000. Other damage was also reported.

Hot Springs, Ark.: a destructive cloud-burst occurred on the 7th at 11 p. m., advancing from the northwest. The rain fell in torrents for two hours. Hotels were flooded to a depth of four feet; many buildings were torn down; five lives were lost, and several persons were missing. Damage to property estimated at \$100,000. Wilmington, N. C.: heavy rains for eight days previous to the 7th caused serious injury to the cotton crop, and the lowlands were inundated by the overflow of the Cape Fear River.

Columbus, S. C.: advices of the 8th state that the crops along the Congaree River have been damaged by the floods to the extent of \$1,000,000. The river rose twenty feet above low water mark.

Augusta, Ga., 10th: a flood is now desolating this city. The streets are filled with water to a depth of several feet, causing an entire suspension of business. In the freshet of 1840, the severest previously experienced, the water did not reach its present height by fifteen inches.

Danville, Va., 10th: dangerous floods were reported along the Dan River.

Atlanta, Ga.: the rain-storm of the 15-16th caused the heaviest rainfall in twenty-four hours (6.23 inches) that has occurred since the establishment of the Signal Service station in 1878. Great damage was done to the cotton crop and by washing out of railroads.

Port Jervis, N. Y.: the Delaware River overflowed on the 17th, causing much damage along its banks and along the line of the Delaware and Hudson Canal.

Newburg, N. Y.: heavy rain fell during the night of the 17-18th. Land slides and washouts occurred on the railroads; at Middletown, N. Y., heavy rains caused washouts along the lines of railroads centring at that place.

Waupaca, Waupaca Co., Wis.: on the 18th high water caused damage amounting to \$38,000.

Easton, Pa.: reports of the 18th show that much damage was caused to railroads and private property by the heavy rains. Bridges were washed away, and railroad traffic was almost entirely suspended. Philadelphia, Pa.: the severe rain-storms which began on the 16th caused a flood in the Schuylkill. Much damage was done to property.

Laredo, Tex.: a cloud-burst occurred on the night of the 20th twenty-eight miles above this place, in the vicinity of the Santa Loma coal mines. The Rio Grande River rose eight feet, and the tracks of the Rio Grande and Eagle Pass Railroad were badly washed.

Paterson, N. J.: advices of the 21st state that enormous damage was caused along the Passaic River by heavy rains. Houses, stock, and crops were swept away by the flood.

Pittsfield, Mass.: on the 21st thousands of acres of meadow land on the Housatonic R. R. between Great Barrington and Sheffield were flooded as the result of the heavy rains.

HIGH TIDES.

Southport, N. C.: 10th, 12th, 15th, 20th, 24th. Galveston, Tex.: 6th, 7th. Key West, Fla.: 6th.

ATMOSPHERIC ELECTRICITY.

AURORAS.

Numerous feeble auroral displays were observed at various places in Dakota, Minnesota, and Wisconsin from the 7th to the 9th, and from the 11th to the 15th, none of which were of a noteworthy character except one seen at Fort Buford, Dak., on the 14th, of which the following report has been made: an aurora in the form of "merry dancers" began 1.48 a. m.; it consisted of luminous straw and white colored beams which reached an altitude of 45° and covering 60° of the horizon. The display ended 5.25 a. m.

Auroras were observed during the month as follows: 1st, Fort Buford, Dak., Saint Vincent, Minn. 2d, Moorhead, Minn. 7th, Garden City, Dak. 8th, Saint Vincent, Minn. 9th and 11th, Webster, Dak., Saint Vincent, Minn. 12th, Webster, Dak., Moorhead, Minn., Deuster, Wis. 13th, Independence, Iowa, Moorhead, Minn., Madison, Wis. 14th, Fort Buford, Dak., Madison and Weston, Wis. 15th, Webster, Dak. 17th, Poplar River, Mont. 24th, Cornish, Me. 26th, Cornish, Me., Wellsborough, Pa. 28th, Davenport, Dak., Hamilton, Pa. 29th, Orono, Me.

THUNDER-STORMS.

The accompanying table shows that thunder-storms were most frequently reported during the month in Florida, where their occurrence was noted on twenty-four days, and that no thunder-storms were observed in Maine. In New York, Iowa, Kansas, and Arizona they were reported on fifteen days; in the District of Columbia, New Hampshire, Rhode Island, and Idaho, on one day only; while in Vermont, Connecticut, Massachusetts, Maryland, Virginia, West Virginia, Indiana, Louisiana, Montana, Utah, New Mexico, Washington Territory, and

Wyoming they were observed on less than five days. In California they were reported on thirteen days. They occurred in the largest number of states and territories (twenty-three) on the 13th; in nineteen on the 20th, and in from ten to eighteen, inclusive, daily from the 1st to the 12th, and on the 14th, 15th, 16th, 18th, 19th, 21st, and 22d. During each of the last eight days of the month they were observed in less than ten of the states and territories, the dates of their minimum occurrence being the 23d and 24th. As there are no stations of observation in Delaware, no reports of thunder-storms have been received from that state.

Table showing the number of stations in the several states and territories reporting thunder-storms for each day during September, 1888.

Table showing the number of stations in the several States and Territories reporting rainfall during September, 1900.																																				
State or Territory.	1.	2.	3.	4.	5.	6.	7.	8.	9.	10.	11.	12.	13.	14.	15.	16.	17.	18.	19.	20.	21.	22.	23.	24.	25.	26.	27.	28.	29.	30.	31.	Total No. of days.				
Alabama.....	1	1	1	1	1	2	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	13				
Arizona.....	1	3	2	1	2	2	1	1	1	1	1	1	1	1	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	15				
Arkansas.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14				
California.....	1	1	2	1	1	1	1	1	1	1	3	3	1	9	6	4	3	4	3	4	3	1	1	1	1	2	1	1	1	1	1	13				
Colorado.....	4	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7					
Connecticut.....	1	1	1	1	1	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3					
Dakota.....	1	1	1	1	1	6	1	1	1	1	1	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11					
District of Columbia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Florida.....	6	4	3	2	2	2	3	2	3	2	2	4	3	5	4	3	1	1	1	2	1	1	1	1	1	2	1	1	1	1	24					
Georgia.....	2	2	2	2	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3	4	1	1	1	1	1	1	1	1	10					
Idaho.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
Illinois.....	2	1	1	1	1	1	5	5	1	2	1	1	1	3	7	1	1	1	1	1	1	7	5	1	1	1	1	1	1	1	10					
Indiana.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4					
Indiana Territory.....	1	1	1	1	1	1	1	1	1	1	1	2	1	2	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	8					
Iowa.....	1	1	5	8	1	1	18	1	1	11	11	2	1	2	6	2	1	1	2	3	13	5	1	1	1	1	1	1	1	1	15					
Kansas.....	1	2	1	1	1	1	3	1	1	2	3	7	2	2	1	1	1	2	2	4	7	5	1	1	1	1	1	1	1	1	15					
Kentucky.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3					
Louisiana.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5					
Maine.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4					
Maryland.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	5					
Massachusetts.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11					
Michigan.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10					
Minnesota.....	2	2	2	1	1	2	9	1	1	8	3	1	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7					
Mississippi.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7					
Missouri.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3					
Montana.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	9					
Nebraska.....	1	1	1	1	1	1	2	1	1	2	1	1	1	1	1	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	8					
Nevada.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
New Hampshire.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	10					
New Jersey.....	1	1	1	1	1	1	1	8	1	1	1	2	3	1	2	1	1	1	1	1	2	2	1	1	1	1	1	1	1	1	3					
New Mexico.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	15					
New York.....	1	1	1	1	1	1	1	1	1	1	1	5	3	1	1	1	1	2	1	6	3	2	1	1	1	1	3	1	2	3	7					
North Carolina.....	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11					
Ohio.....	1	1	1	3	1	1	1	1	1	1	1	7	1	1	4	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	8					
Oregon.....	1	1	1	1	1	1	1	1	1	1	1	2	1	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12					
Pennsylvania.....	1	1	1	1	1	1	1	3	3	1	1	22	2	1	1	4	1	1	1	1	6	1	1	1	1	1	1	1	1	1	1					
Rhode Island.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1					
South Carolina.....	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	12					
Tennessee.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	11					
Texas.....	1	1	1	1	1	1	3	6	5	4	3	5	2	3	1	1	1	1	1	1	5	1	2	2	1	1	1	1	1	1	12					
Utah.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3					
Vermont.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4					
Virginia.....	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	6	1	1	1	1	1	1	1	1	1	2					
Washington.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4					
West Virginia.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2					
Wisconsin.....	1	1	1	1	1	1	6	1	1	6	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	7					
Wyoming.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	3					
Number of States reporting.....	13	11	12	15	11	13	11	12	17	11	17	18	23	17	13	13	8	14	10	19	18	13	3	3	5	4	5	9	7	9						

MISCELLANEOUS PHENOMENA.

DROUGHT.

Chicago, Ill., 8th: reports from central and western Michigan state that the corn crop has been severely injured by the long drought.

Lamar, Mo., 10th: farmers report that the dry weather has been very injurious to the fall pastures.

Detroit, Mich., 12th: the continued drought has been very injurious in this part of the state, especially in Wayne, Oakland, and Macomb counties, the corn, of which there was an unusually large acreage this season, is burned and shriveled, with ears only partly matured; a general heavy rain fell in all sections of state on 15th, 16th, and 17th, breaking the drought.

Monument City, Huntington Co., Ind.: the rain which fell on the 15th was the first since the 2d of August; the dry weather has been very damaging to the agricultural interests in this section.

Moorhead, Minn., 17th: on account of the drought the ground has become so hard that farmers have been unable to commence plowing.

Huron, Beadle Co., Dak., 27th: farmers report that rain is very much needed for fall work, the ground has not been dry to such a great depth in nine years.

Tiffin, Seneca Co., Ohio, 30th: on account of the protracted drought, the Baltimore and Ohio Railway Company was running water trains during the first half of the month to different points west of this place.

FOREST AND PRAIRIE FIRES.

Los Angeles, Cal., 7th: a large fire is reported in the Little Santa Anita Cañon, east of Sierra Madre.

Aberdeen, Brown Co., Dak., 7th: reports state that prairie fires are raging in McPherson and Edmonds counties; a large number of farmers have lost their farm houses and entire crops.

Escanaba, Mich., 12th: forest fires are burning at the edge of the town.

Deep River, Arenac Co., Mich., 12th: fires are reported along the Michigan Central Railroad, causing great damage to houses, fences, etc.

Standish, Arenac Co., Mich., 15th: forest fires are observed in all directions from this place.

Portland, Oregon, 15th: prairie fires are raging along the Columbia River northeast of this city; numerous homes of settlers and two or three railroad bridges have been burned.

Bismarck, Dak.: prairie fires burned over the entire south-